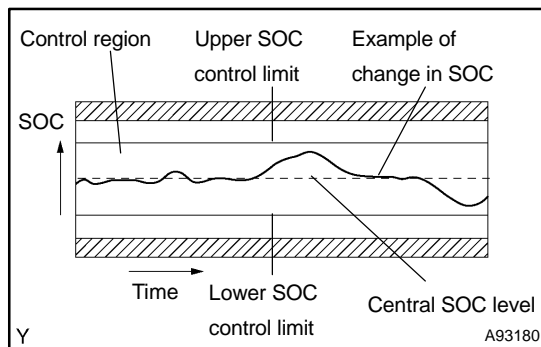| DTC	P0A7F	HYBRID BATTERY PACK DETERIORATION

CIRCUIT DESCRIPTION

The battery ECU calculates the SOC (state of charge) of the HV battery by estimating the amperage that flows into the HV battery and monitoring other values.

The battery ECU sends the calculated SOC to the HV control ECU. The HV control ECU charge and discharge depending on driving patterns based on the information sent by the battery ECU.

DTC No.	DTC Detection Condition	Trouble Area
P0A7F	• Resistance of HV battery assembly is higher than standard (1 trip detection logic) • When the capacity difference between battery modules exceeds the specified value (2 trip detection logic)	• HV battery assembly • Battery ECU

MONITOR DESCRIPTION

The battery ECU calculates the resistance of the HV battery through amperage and voltage, and uses this resistance to determine the extent of deterioration of the HV battery. If the battery ECU detects that the resistance of the HV battery has exceeded the standard, it determines that malfunction has occurred. In addition, the battery ECU monitors the SOC, and if the difference between the maximum and minimum SOC values exceeds the standard, it determines that malfunction has occurred. When either of the malfunction detection conditions is met, the battery ECU illuminates the MIL and sets a DTC.

MONITOR STRATEGY

Related DTCs	P0A7F: HV battery/Rationality
Required sensor/components	Main: Battery voltage sensor inside battery ECU, battery current sensor Sub: Battery temperature sensor
Frequency of operation	Continuous
Duration	TOYOTA's intellectual property
MIL operation	Immediately or 2 driving cycles
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

The monitor will run whenever the following DTCs are not present	TOYOTA's intellectual property
Other conditions belong to TOYOTA's intellectual property	–

TYPICAL MALFUNCTION THRESHOLDS

Either of the following condition	(1) or (2)
(1) Internal resistance	Exceeds the standard level
(2) The difference between the maximum SOC and the minimum SOC	Exceeds the standard level

COMPONENT OPERATING RANGE

TOYOTA's intellectual property	–

INSPECTION PROCEDURE

1	READ OUTPUT DTC(DTC P0A1F IS OUTPUT)

(a) Connect the hand–held tester or the OBD II scan tool to the DLC3.

(b) Turn the power switch ON (IG).

(c) Turn the hand–held tester or the OBD II scan tool ON.

(d) On the hand–held tester, enter the following menus: DIAGNOSIS / ENHANCED OBD II / HV BATTERY / DTC INFO / TROUBLE CODES.

For the OBD II scan tool, see its instruction manual.

(e) Read DTCs.

Result: DTC P0A1F is output

> YES → **REPLACE BATTERY ECU ASSY**
> **(See page 21–124)**

NO ↓

REPLACE HV SUPPLY BATTERY ASSY (See page 21–54)